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Addressing Climate Risks Through Science/Policy Partnerships

Dr. Michael D. Mastrandrea
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“Dangerous” Climate Change

- UNFCCC Article 2, 1992:
 - The Goal: “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”



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“Dangerous” Climate Change

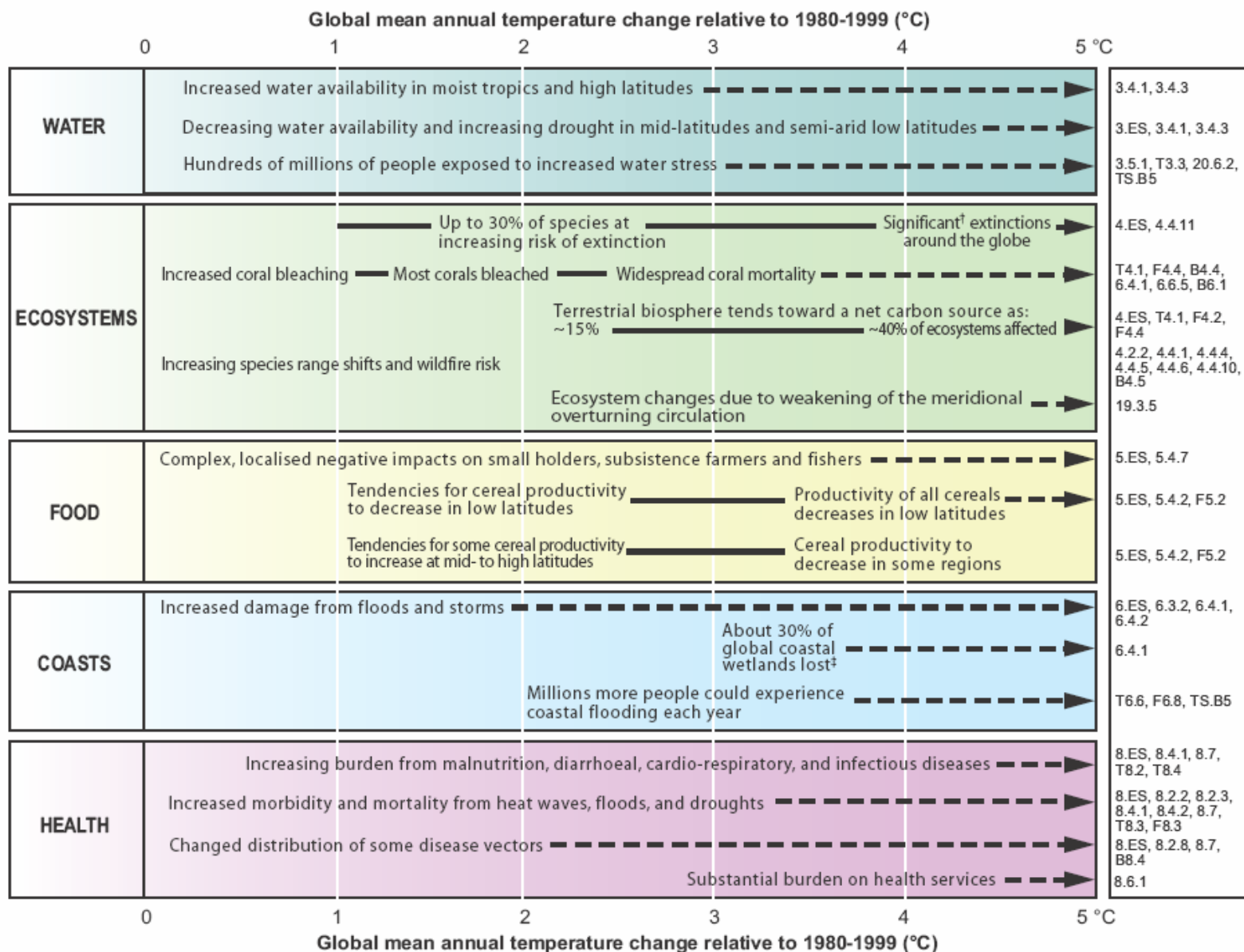
- UNFCCC Article 2, 1992:
 - The Goal: “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”
- Who decides what is “dangerous?”
- Ultimately, not a scientific choice
- Different valuation metrics = different levels where impacts become “dangerous”



Key impacts as a function of increasing global average temperature change

(Impacts will vary by extent of adaptation, rate of temperature change, and socio-economic pathway)

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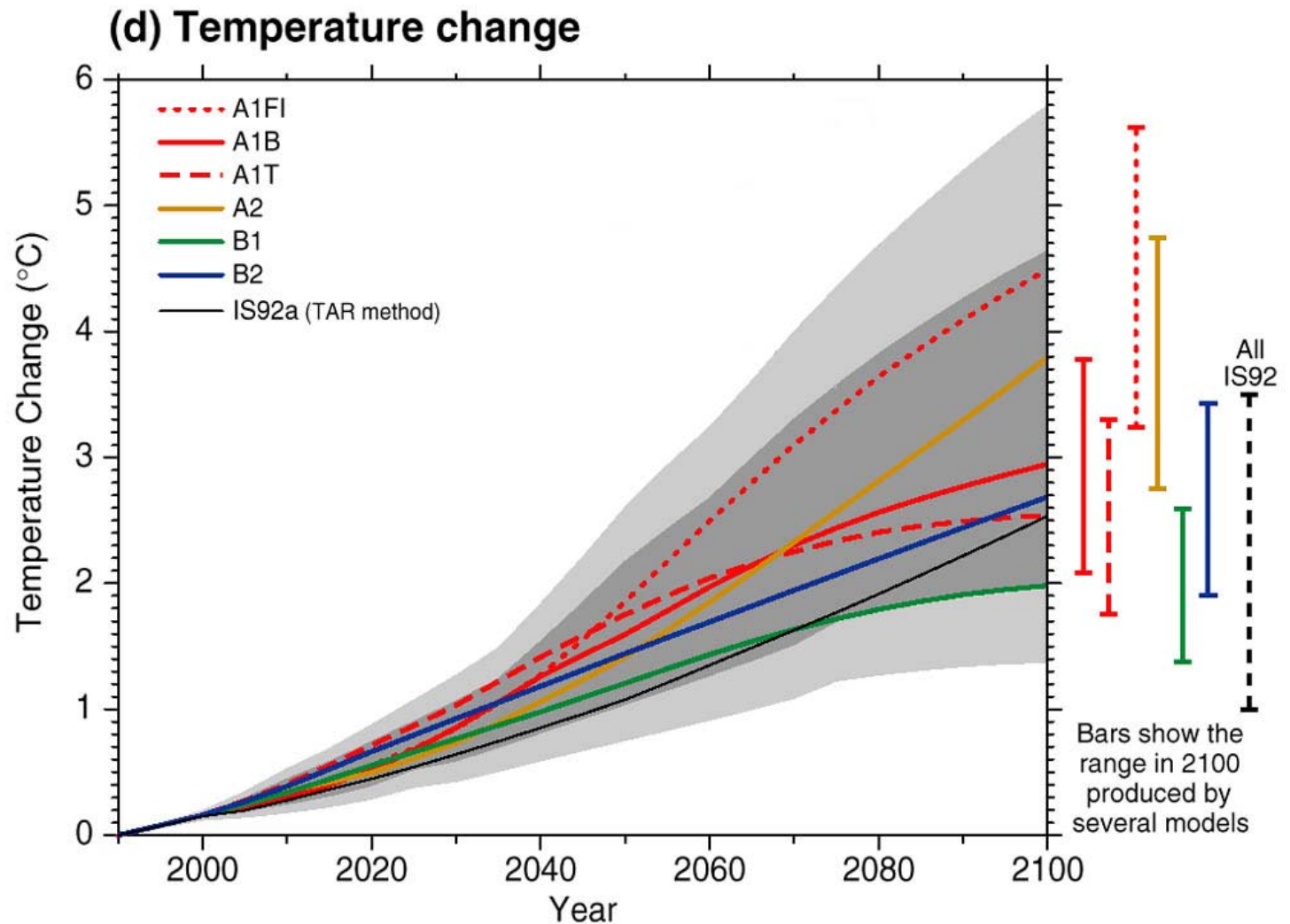
[†] Significant is defined here as more than 40%.

[‡] Based on average rate of sea level rise of 4.2 mm/year from 2000 to 2080.



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Climate Projections and Uncertainty

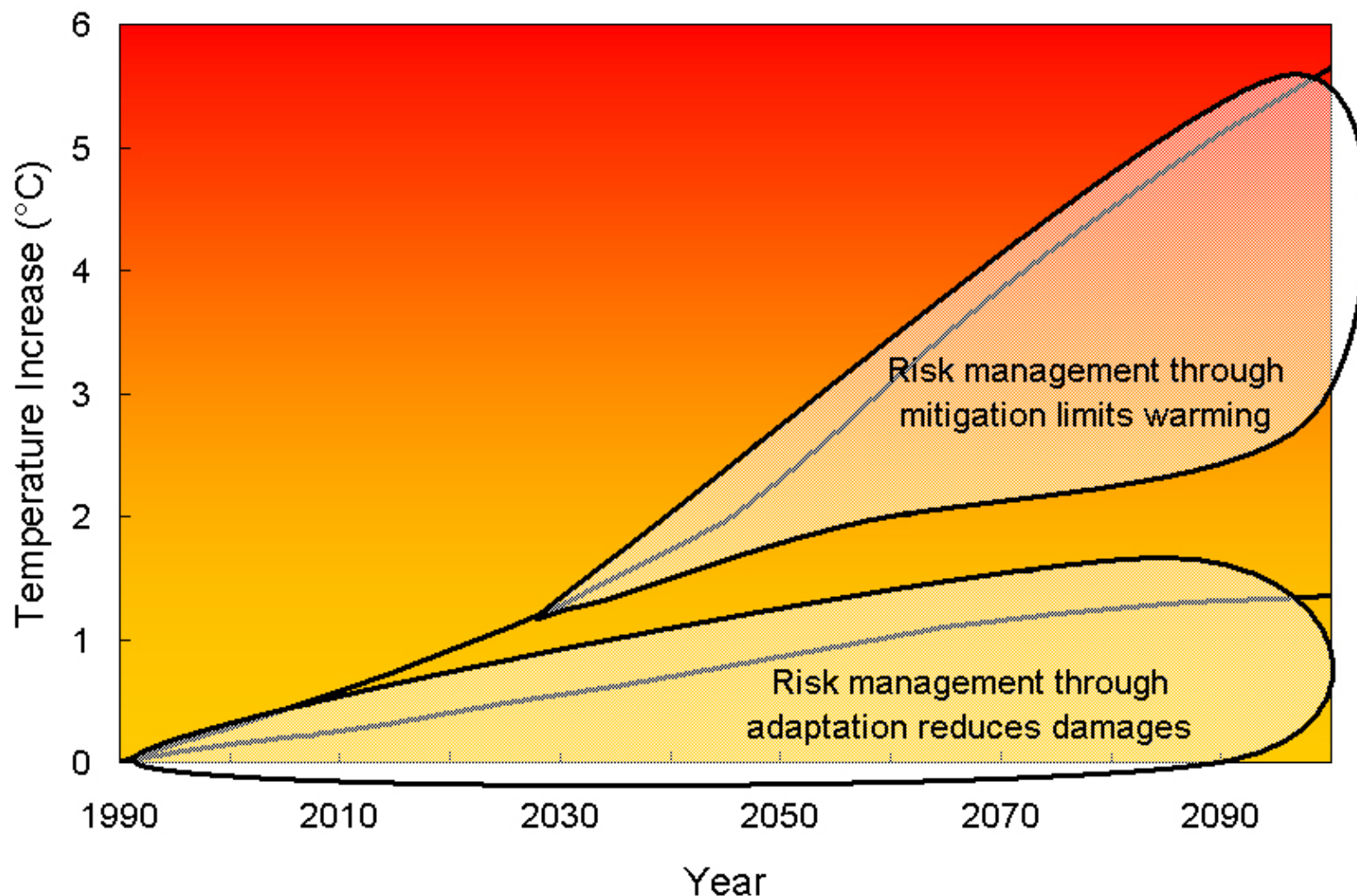


IPCC, 2001



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Climate Risk Management



After Jones, 2003



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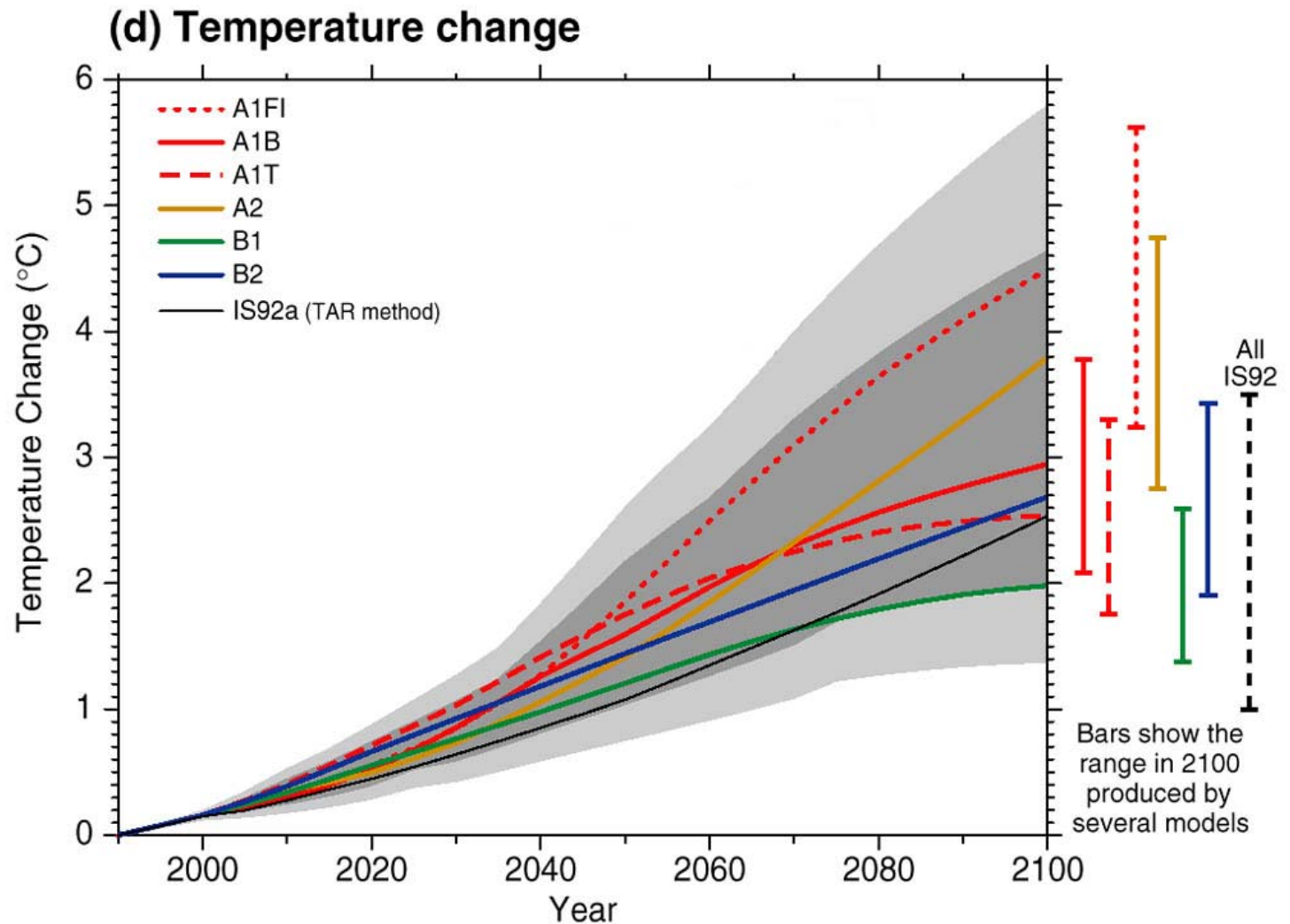
Impacts, Vulnerability, and Adaptation

- Key Future Direction: Integrated and expanded research in vulnerability and adaptation
- Social benefit beyond climate research
- Important as a complement (not a replacement) of solutions and mitigation research
- Two approaches for tailoring research for this purpose:



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Climate Projections and Uncertainty

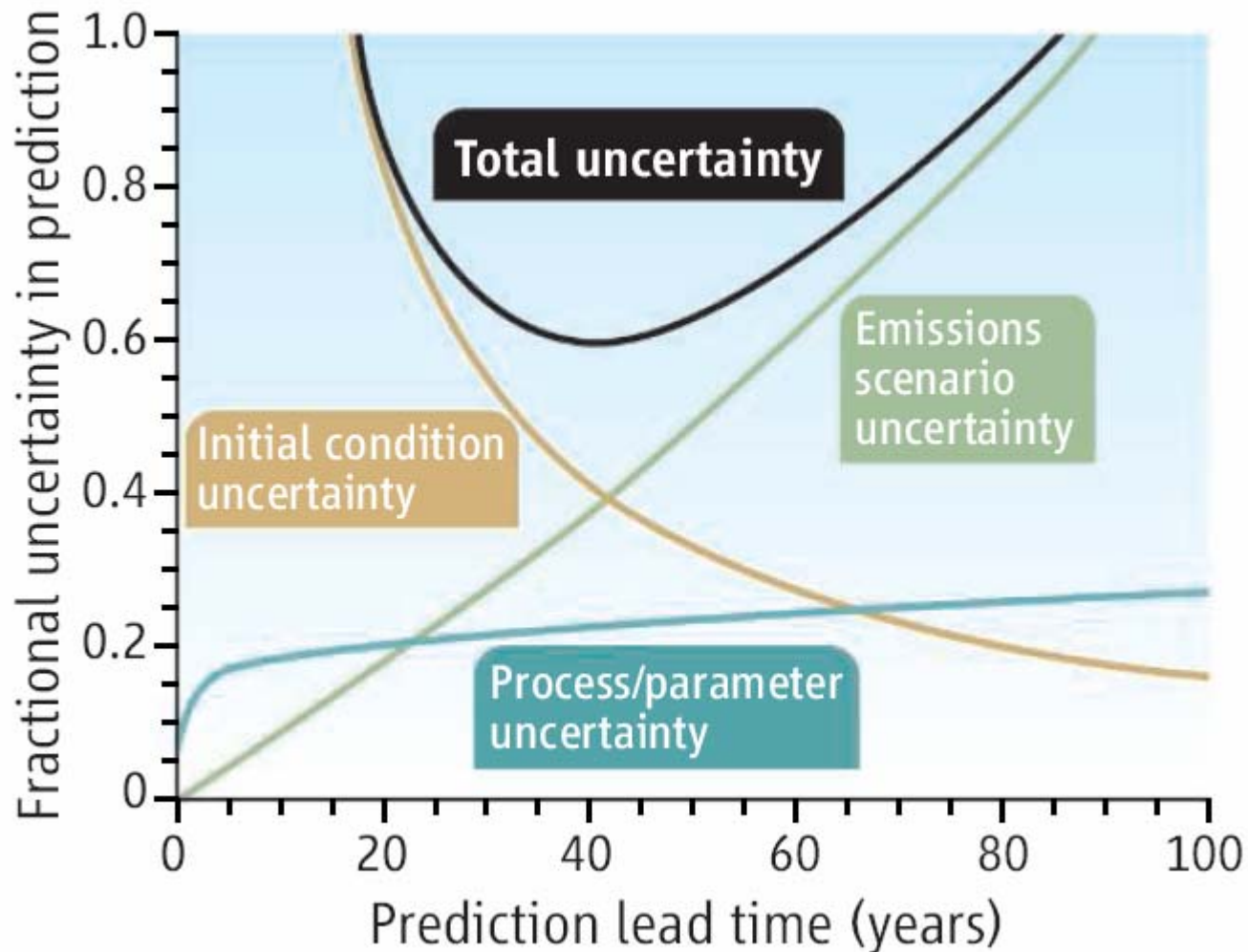


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Impacts, Vulnerability, and Adaptation

- Key Future Direction: Integrated and expanded research in vulnerability and adaptation
- Social benefit beyond climate research
- Important as a complement (not a replacement) of solutions and mitigation research
- Two approaches for tailoring research for this purpose:
 - Projected impacts of low emissions scenarios
 - Climate Forecasts (“predictions” based on assumptions about future emissions and climate uncertainties, requires transparency about assumptions)